

meteorological library was maintained, and the various text-books exhibited were frequently consulted by teachers and others.

Photographs.—A large number of beautiful photographs, showing cloud and fog studies, snow crystals, floods, etc., were attractively displayed.

A model storm-warning tower and four large storm-warning lanterns were among the additional equipment exhibited.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

H. H. KIMBALL, Librarian.

The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

Aachen. Meteorologisches Observatorium.

Das neuerrichtete meteorologische Observatorium zu Aachen. Karlsruhe. 1901. 21 p. f°.

Hobbs, William Herbert.

Earthquakes, an introduction to seismic geology. New York. 1907. xxx, 336 p. 12°.

Kühl, Wilhelm.

Der jährliche Gang der Bodentemperatur in verschiedenen Klimaten... Inaug.-Diss... Berlin. [Würzburg. 1907. 66 p. 8°.]

Mathesius, —.

Die Kaiser'schen Wolkenhöhen-Messungen der Jahre 1896 und 1897. Danzig. 1907. p. 49-137. 4°. (S.-A. Schriften. Danzig. N. F. 12 Bd. 1. Heft. Danzig. 1907.)

Platania, Giovanni.

I fenomeni in mare durante il terremoto di Calabria del 1905. Modena. 1907. 41 p. 8°.

Prussia. Königliche preussische aeronautische Observatorium. Lindenbergs.

Ergebnisse der Arbeiten... 1906. 2. Band. Braunschweig. 1907. xiv, 176 p. f°.

Raulin, V.

Observations pluviométriques faites dans la France méridionale (sud-ouest, centre et sud-est) de 1704 à 1870... Paris. 1876. ix, 1044 p. 8°.

Observations pluviométriques faites dans la France septentrionale (est, Neustrie et Bretagne) de 1688 à 1870... Paris. 1881. xv, 810 p. 8°.

Thomson, J. J.

The corpuscular theory of matter. London. 1907. vi, 172 p. 8°.

RECENT PAPERS BEARING ON METEOROLOGY.

H. H. KIMBALL, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —

American aeronaut and aerostatist. St. Louis. v. 1.

Steichmann, H. Hildebrandt's Icelandic observations. (Oct., 1907.) p. 23-24.

Rotch, A. Lawrence. Use of registration balloons in obtaining meteorological conditions at great heights. (Nov.-Dec., 1907.) p. 17-18.

American geographical society. Bulletin. New York. v. 39. Dec., 1907.

Ward, R. DeC. Jamaica negroes and climate. [Note.] p. 744.

Ward, R. DeC. Weather and railroads. p. 717-748.

Electrical world. New York. v. 50. Dec. 21, 1907.

Carpenter, D. S. The rolling of thunder. p. 1211-1213.

Geographical teacher. London. v. 4. 1907.

Shaw, W[illiam] N[apier]. The general circulation of the atmosphere. [Popular presentation of the subject in the light of recent theories.] p. 52-64.

Great Britain. Meteorological office. Monthly meteorological charts. Indian ocean. Jan., 1908.

— Results of meteorological observations in the Persian Gulf and the Gulf of Oman. 1 p.

London, Edinburgh, and Dublin philosophical magazine. London. 6 series. v. 14. Dec., 1907.

Eve, A. S. On the amount of radium emanation in the atmosphere near the earth's surface. p. 724-733.

Poynting, J. H. On Professor Lowell's method for evaluating the surface temperatures of the planets, with an attempt to represent the effect of day and night on the temperature of the earth. p. 749-760.

Manchester geographical society. Journal. London. v. 23. Pt. 2. 1907.

Swallow, R. W. A glimpse at western China; the province of Shansi. [Including brief account of the climate, p. 57.] p. 49-59.

Science. New York. New series. v. 27. Jan. 10, 1908.

McNair, F. W. Report of the general secretary of the American association for the advancement of science for the Chicago meeting, convocation week, 1907-8. [Includes reports of the committee on seismology.] p. 41-49.

Reid, Harry Fielding. The meeting of the International seismological association. p. 74-76. [Includes reports of the committee on seismology.]

Scientific American supplement. New York. v. 65. Jan. 11, 1908.

Arrhenius, Svante. Auroras and magnetic storms. Caused by solar dust in the earth's atmosphere. p. 31.

Scottish geographical magazine. Edinburgh. v. 23. Dec., 1907.

Newbigen, Marion I. The study of the weather as a branch of nature knowledge. p. 627-648.

Scottish meteorological society. Journal. Edinburgh. v. 14. 3 ser. no. 24.

Mitchell, Arthur, and others. Memorial notices of Alexander Buchan. p. 101-118. [Includes portrait and list of writings.]

Bell, Herbert. Thunderstorms at the Ben Nevis observatories and on the Scottish coasts. p. 119-133.

Lempfert, R. G. K. The daily weather report. p. 134-140. [Description of British and foreign daily weather maps.]

Richardson, Ralph. Rain-producing east winds and their influence on the summer of 1907. p. 141-143.

Symons's meteorological magazine. London. v. 42. Dec., 1907.

Ellis, William. Greenwich air temperature. p. 209-214.

Atrophile. Paris. 15 année. Déc., 1907.

Aubry, Roger. L'aurore des aéronautes. p. 338. [Describes aurore observed around the shadow of a balloon on a cloud.]

Ciel et terre. Bruxelles. 28 année. 1 déc. 1907.

Vincent, J. Le grain du 3 août 1905. p. 445-450.

— Dispersion du brouillard et des fumées par l'électricité. p. 489-491.

Vincent, J. Le ballon-sonde belge du 25 juillet 1907. p. 495-500. [Account of the highest ascent ever made with sounding-balloon.]

Remarks on temperature inversion.]

France. Académie des sciences. Comptes rendus. Paris. Tome 145.

Demouyssy, E. Influence de l'état hygrométrique de l'air sur la conservation des graines. p. 1194-1196. (Dec. 9, 1907.)

Nodon, Albert. Recherches sur les variations du potentiel terrestre. p. 1370-1371. (Dec. 23, 1907.) [Variations in earth potential as prognostics of atmospheric and seismic disturbances.]

Journal de physique. Paris. 4 série. Tome 6. Déc. 1907.

Schuster, Arthur. Sur quelques phénomènes électriques de l'atmosphère et leurs relations avec l'activité solaire. p. 937-950.

Mogimont. *Publications populaires de la Station météorologique Mons.* no. 5.

Bracke, A. La prévision locale du temps. Le polymètre Lambricht. p. 123-132.

Le Paige, L. A propos de l'incendie d'Anvers. p. 135-137.

Nature. Paris. 36 année. 4 jan. 1908.

— Janssen. p. 78-79.

Société belge d'astronomie. *Bruxelles.* 12 année. Nov., 1907.

Arctowski, Henryk. Variations de longue durée de divers phénomènes atmosphériques. p. 328-340.

Agamennone, G. Théorie des tremblements de terre. p. 340-345.

Lagrange, E. La propagation des ondes sismiques longues. p. 347-348.

D., A. La méthode du "vent normal" dans la prévision du temps. p. 366-367.

Société météorologique de France. *Annuaire. Paris.* Oct., 1907.

Brunhes, B. Sur l'enregistrement des courants telluriques au Puy-de Dome et la perturbation magnétique du 9 au 10 février 1907. p. 181-182.

Marchand, E. Observations du courant tellurique sur la ligne télégraphique de l'Observatoire du Pic du Midi. p. 183-186.

Moureaux, Th. Nouvelles déterminations magnétiques dans la région du bassin de Paris. p. 188-195.

Société ouralienne d'amateurs des sciences naturelles. *Bulletin. Ekaterinburg.* Tome 26. 1907.

Abels, H[ermann Fedorovic]. Précipitations atmosphériques dans le gouvernement de Perm pendant l'année 1903, 1904, 1905. p. 51-62.

Königliche preussische Akademie der Wissenschaften. *Sitzungsberichte. Berlin.* 1907. 50.

Zimmermann, H. Ueber grosse Schwingungen im widerstehenden

- Mittel und ihre Anwendung zur Bestimmung des Luftwiderstandes. p. 874-907.
- Annalen der Hydrographie und maritimen Meteorologie.* Berlin. 35 Jahrgang. 1907.
- Stach, E. Ein neuer Apparat zum Registrieren von Luft- oder Gasgeschwindigkeiten. p. 477-479.
- Meteorologische Zeitschrift.* Braunschweig. Band 24. Dez. 1907.
- Hann, J. Ergebnisse der meteorologischen Beobachtungen am Åtna-Observatorium. p. 529-534.
- Osthoff, H. Streifenwölken. p. 534-540.
- Quervain, A. de. Pilotballonanvisierungen in Zürich während der Hochdruckperiode vom 14. bis 25. Januar 1907. p. 540-546.
- Brückmann, W. Das Vektorazimut beim Beginn magnetischer Störungen. p. 546-548.
- Hann, J. A. Schmauss über die im Jahre 1906 von der K. b. met. Zentralstation veranstalteten Registrierballonfahrten. p. 549-550.
- Schmidt, A. Die barometrische Tendenz. p. 550-552. [Proposes that barometer change in preceding 2 hours be included in the weather telegram.]
- Smirnow, D. Einige Bemerkungen zu dem Artikel von L. Gorczynski "Ueber die Wirkung der Glashülle bei den aktinometrischen Thermometern." p. 552-555.
- Ueber das Klima an der Südgrenze der Sahara im französischen Sudan. p. 555.
- Schubert, J. Der Niederschlag in der Letzlinger Heide. p. 555-558.
- Hann, J. O. Fassig über das Klima der Bahama-Inseln. p. 558-559. [Abstract.]
- Hann, J. R. Billwiler (sen.): Der tägliche Gang des Luftdruckes in verschiedenen Seehöhen in der Nordost-Schweiz. p. 559.
- Rheden, Joseph. Wolkenhöhenmessungen mit Hilfe der Scheinwerferanlage des wiener Leuchtbrennens, angestellt im Jahre 1907. p. 561-563.
- Hann, J. Der Wettersturz vom 15. bis 16. August 1907 und die alpinen Unglücksfälle. p. 563-565.
- Trabert, Wihl. Die Temperaturverteilung in grossen Höhen. p. 565.
- D., A. T. Okada über die Geschwindigkeit fallender Regentropfen. p. 565-566.
- Hergesell, H. Die Erforschung der freien Atmosphäre über den Polargebieten. p. 566-567.
- Resultate der meteorologischen Beobachtungen an der Versuchsstation Pasaruan (Ostjava, Nordküste). p. 568-570.
- Ergebnisse meteorologischer Beobachtungen auf den Kanarischen Inseln. p. 572.
- Regenfall auf Grenada. p. 574.
- Pyrheliometrische Messungen in Madrid. p. 574-575.
- Weltall. Berlin. 8. Jahrgang. 1907 Dez. 1.
- Braun, Joh. Ueber die Kälterückfälle im Frühjahr. p. 78-82, 95-99.
- Società geografica italiana. *Bollettino.* Roma. Ser. 4. v. 8. Dic. 1907.
- Barrata, Mario. Il nuovo massimo sismico calabrese (23 ottobre 1907). p. 1259-1264.
- Hemel en dampkring. Den Haag. 5 Jahrgang. Dec., 1907.
- IJsslandsche weertelegrammen. p. 112-113.
- Dr. Maurits Snellen. p. 114.
- Arkiv för matematik, astronomi och fysik. Uppsala. Band 3. Häfte 3-4. 1907. No. 25.
- Sandström, J. W. Ueber die Temperaturverteilung in den allerhöchsten Luftsichten. 6 p.

SPECIFIC GRAVITY OF SNOW.

By M. E. T. GHEURY. Dated Eltham, England, August 3, 1907.

I had made preparations to ascertain, during the winter of 1906-7, the weight of snow that can accumulate on suspended wires of various diameters. Owing to lack of favorable meteorological conditions and to the fact that I was away from home during the only heavy snowfall in London, I had to be content with simply taking measurements of the specific gravity of snow. This was done by placing a shallow rectangular tray with vertical edges on the ground and leaving it till well covered by the snow. On lifting it carefully it was found that the shearing of the snow took place in a very reg-

ular manner and left on the tray a neat rectangular solid of snow, the latter being undisturbed by the process and in the same state as the snow on the surrounding ground.

January 24, 1907. After two days' hard frost, snow fell in very fine powder from morning till evening, when the measurements were taken. It lay frozen in a powder without any cohesion, but could, however, be made into balls by strong compression, undergoing considerable reduction of volume during the process. The snowfall had been insufficient to completely cover the tray, and near one edge a ridge of snow had been formed by the wind, while on the opposite side the snow did not quite reach the side of the tray, there being a gap of about one-twentieth of an inch. The excess due to the ridge was ascertained to approximately compensate the deficiency due to the gap.

Size of tray, 23.3 cm. \times 10.9 cm. = 254 sq. cm.

Weight of tray, 87.81 grams.

Average depth of snow, 0.9 cm. (ascertained by placing vertically in the snow, at various places, a small divided scale).

Weight of snow, 17.48 grams.

Specific gravity of snow, 0.076.

Depth required for a load of 1 kilogram per square meter, 13.2 mm.

February 4, 1907. Snow fell during the afternoon and the evening. It was fluffy, adherent, forming a compact mass without much pressure, but undergoing a considerable reduction in volume during the process. Instead of being formed of very small grains as on the 24th, it was made of fine hexagonal stars and fine needles of ice, with evidently many air spaces. A cat had left a footprint in one corner of the tray. As it might have carried some snow away with it, the trodden part was cut carefully away, leaving an effective area of 169 sq. cm.

Average depth of snow, 2.2 cm.

Weight of tray, 86.10 grams. (It had become rusty and had been cleaned the day before.)

Weight of snow, 19.52 grams.

Specific gravity of snow, 0.052.

Depth required for a load of 1 kilogram per square meter, 19.2 mm.

By collecting some snow on a sloping roof and carefully measuring the dimensions of the solid, its volume being found to be 1677.6 cm³, with a weight of 60.09 grams, the specific gravity of the snow was found to be 0.036. This method is, however, subject to inaccuracies, as it is very difficult to measure the volume of the solid space occupied by the snow in these conditions.

ATMOSPHERIC DUST IN THE GULF OF MEXICO.

By E. BANVARD, second officer Amer. S.S. *Monterey*, Capt. Arthur Smith, of the New York and Cuba Mail Steamship Company, on voyage from Vera Cruz to New York.

On January 13, 1908, after the blow of January 12, we found the ship covered with a fine gray or white dust, especially the masts and rigging, something I have never seen before during a gale in the Gulf. The wind was west. The dust must have been carried from the coast of Mexico, or possibly from Texas, by an upper current of air. We were hove to about fifteen miles north of Progreso.